The Report Committee for Bryan Lewis Brah Jr.

Certifies that this is the approved version of the following report:

The Texas Hill Country and the Looming Water Crisis

APPROVED BY

SUPERVISING COMMITTEE:

Supervisor: _____

William D. Minutaglio

Co-Supervisor: _____

Tracy S. Dahlby

_____

Henry W. Brands

# The Texas Hill Country and the Looming Water Crisis

by

Bryan Lewis Brah Jr., B.A., B.J.

Report

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**Abstract**

The Texas Hill Country and the Looming Water Crisis

by

Bryan Lewis Brah Jr., M.A.

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SUPERVISOR: William D. Minutaglio

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This report examines the cultural and economic growth of the Texas Hill Country resulting from the construction of the Highland Lake chain. It compares the current political and social climate of the region with the historical past, and offers solutions to avert an inevitable collision between a rising population and the constraints of limited water resources.

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**Background**

The Texas Hill Country, a cluster of 25 counties perched on the Eastern edge of the Edwards Plateau, may well be on the brink of disaster. Once sparsely populated ranchland, the area is now home to several of the fastest-growing cities in the U.S. But while it's easy to argue for growth, the same forces that bring economic prosperity can wreak havoc on both natural and social systems. The problem is not prosperity; it is the raw population increase that accompanies growth and the inevitable battle between that population and the natural world.

This is exactly what has happened in the Texas Hill Country over the last century. According to U.S. Census data, at the dawn of the 20th century the region supported a population of around 261,000 people. As of 2009, nearly 2.4 million people called Central Texas home, and the population is expected to top four million by 2030. To put this nine-fold increase into perspective, over the same 109 years, the U.S. population *only* quadrupled from 76 million to 307 million. Spillover from San Antonio accounts for some of the Hill Country's growth, but in-migration plays a greater part as people flock to the region for its 300 days of sun, mild winters, vibrant economy, and rich culture.

Because of its climate, technology businesses, and cultural assets, Austin has consistently ranked among the top cities in which to live for more than a decade and has become a haven for everyone from snowbirds to Californians. According to Forbes Magazine's most recent list of fastest growing U.S. cities, Austin and San Antonio were ranked first and second. This growth pits the wills of individuals against the inflexibility of nature and places increasing demands on the environment, as varied interests compete for access to and control over limited resources.

Far from being homogeneous, the counties that make up the Texas Hill Country contain a diverse mix of urban, suburban, and rural communities, each facing a unique set of challenges. The urbanized counties on the eastern edge contend primarily with sprawl and infrastructure

constraints due to a rapidly-rising population. Communities in the middle counties of the Texas Hill Country face similar infrastructure constraints but must also fight to retain their individual character as they resist becoming bedroom communities and weekend getaways for residents of their larger eastern neighbors. Sprawl is much less of an issue in the western counties of the Texas Hill Country, but those communities face the potentially greater challenge of changes in traditional land-use patterns as a result of fractionalization of large ranches. The one factor challenging each of these varied interests is water.

It should come as no surprise that water is at the center of this struggle for resources. Water is and has always been the single biggest problem facing residents of the Texas Hill Country. How to get it, how to protect it, how to keep it at bay, how to harness its power, and how to make money from it remain primary obsessions of Hill Country politicians and citizens alike.

According to a Lower Colorado River Authority plan approved in 2008 by the Texas Water Development Board, unless conservation efforts are dramatically increased and expanded, there will not be enough water to support the growing population of Central Texas. Currently residents of the region, known as TWDB Region K, use about 1 million acre/feet of water each year, but the total volume of water available to the region is just under 1.3 million acre/feet per year. In drought years, such as the region experienced in 2006 and again in 2009, the volume of available water dips to levels only slightly above the consumption rate.

The increase in the region's population, or more properly that population's thirst for water, usurps traditional uses of the region's primary water source and pits urban and suburban water users against rural water users. Direct water use by residential consumers accounts for much of the strain on the water supply. But rising population also places indirect pressure on water resources through power generation activities as massive volumes of water are used to turn

the turbines in hydroelectric as well as those in coal-fired and natural gas power plants. The latter also use water for cooling. The region's location and population also attract manufacturing firms which themselves use water and power to make products ranging from pharmaceuticals, to electronics, to heavy equipment.

Although not yet an ongoing concern, water constraints may soon force power producers to make hard decisions. "Sometimes it's just cheaper to turn off the generators and keep the water in the lake for sale to customers," said Bill Yates, an engineer for LCRA. "We have to keep enough water to meet our contract obligations downriver."

The largest consumers of the Colorado's water outside of the Hill Country are rice farmers in Colorado, Wharton, and Matagorda counties, some of whom hold contracts dating from the 1940s. Agriculture traditionally consumed the lion's share of the Colorado's water. Although increased urban and industrial uses have eclipsed agriculture, "Texas law declares that the state must give preference to certain types of water uses when granting water rights … first in time is first in right. Downstream rice farmers were given first water rights in the Colorado basin, and these rights are senior to LCRA's water rights for the Highland Lakes," according to the LCRA website.

When the population of the Hill Country was a few hundred thousand, there was no conflict because there was enough water for everyone. But very soon LCRA may have to choose between providing water to Hill Country residents and businesses, or honoring decades-old contracts with farmers. "We've been in the position where we told industrial customers that we couldn't sell them water at $10 an acre/foot because we're already selling that water to rice farmers for $3 an acre foot," Yates said. "It's just a matter of time before we turn away retail customers."

The origins of the current dilemma have their roots in the region's unique location and topography. The Texas Hill Country sits atop the Edwards Plateau, a limestone outcrop riddled with caves, underground rivers, and springs. Historically the area's residents relied on this extensive karst groundwater system for most of the water they used. But the carrying capacity of the system's springs and wells created a natural upper limit to the number of people the region could support.

Topographically, the Texas Hill Country straddles the border between the humid subtropical climate zone that characterizes East Texas and the semi-arid climate zone of West Texas. The Balcones Escarpment at the easternmost edge of the Edwards Plateau defines this border and creates unpredictable weather patterns. "During the warm months at night, the low-level jet coming off the Gulf hits the Escarpment. This produces a natural rising motion that can lead to rain formation right along the Escarpment or just west of I-35," said local meteorologist Zack Shields. This accounts for the region's generally Mediterranean-like climate with yearly rainfall concentrated into a few months at the end of the winter and early spring, and occasional violent thunderstorms during the summer.

The popular misconception of Texas as a "Roadrunner and Coyote" cartoon with vast stretches of open space dotted with occasional saguaro cacti and tumbleweeds is closer to the truth than many Hill Country residents like to admit. The rugged beauty of low rolling hills covered with a savannah of live oak, juniper, cedar elm, and grasses belies average rainfall ranging from around 33 inches on the eastern edge to a meager 18 inches in the west. The phenomenal growth of the region would not have been possible without first subduing the water (or at least settling into an uneasy truce with it).

"There's no way that an intermittent source like the Colorado could support a large population without water impoundment," Yates said.

Mike Miller, general manager and lead historian of the Austin History Center agrees. "Without adequate flood control Austin would probably still just be a government center with a university," he said.

Slicing its relentless path across the Edwards Plateau through the heart of the Hill Country, a sleepy river winds its way around and under the scrubby limestone hills, through rugged canyons, and over the Balcones Fault until it reaches the low plains to the east and eventually meanders into the Gulf of Mexico at Matagorda Bay. Texas' Colorado River (the other Colorado flows west from the Rockies to the Gulf of California) begins as a series of creeks and streams in Dawson County just south of Lubbock. It was at once a blessing and a curse for the ranchers and farmers who first settled the region. Small-scale diversions of its flow irrigated crops and helped dirt farmers scratch out an existence from the alkaline soil. Its waters sustained livestock through times when the water table dropped and the wells and stock ponds ran dry, but its course through the steep terrain proved a challenging obstacle for ranchers driving their herds east.

Normally placid, early accounts described the Colorado as a "stream," the river has shown itself capable of wanton vitriolic rage. "Topography and soil content make Central Texas 'Flash Flood Alley,' Shields said. Because the rocky soil is generally thin, rains quickly filter through to recharge the aquifers, however when the limestone karst system in the Colorado's drainage basin is full or if a very high volume of rain falls in a short period of time, storm runoff has no place to go but into the Colorado's tributary streams, creeks, and rivers. "We'll get a 'Rain Bomb' when the core of a dissipating tropical system stalls west of Austin. It will just sit over one area and rain itself out," Shields said. Steep canyons channel this runoff into massive walls of water that sweep down Sandy Creek and the Llano, Pedernales, and Colorado Rivers,

scouring the riverbeds and banks and smashing anything in their paths. "I've seen Lake Travis fill up in a day," he said.

When the region was only widely separated ranches and farmsteads, residents fell into the cycle of droughts punctuated by massive floods. They located their homes on the high ground, and waited for the waters to subside.

"When the railroad came to Austin in 1871, the city became a commercial center for cotton farmers and cattle ranchers," Miller said. This shift toward urbanization is emblematic of the changing demographics at the end of the 19th century. Populations began to congregate in towns and cities. But because of the volatility of ground water supplies in the region, these urban areas were undoubtedly sited close to available sources of surface water placing residents at the mercy of the river. The river's unpredictability placed a second natural limit on growth because people were unwilling to build in areas that were regularly thrashed by walls of water. It wasn't until the 1930s that the region's residents managed to blunt the violence of the river and secure a stable year-round supply of water.

This triumph, of technology over the environment, of man over nature, created the ideal conditions for an altogether different kind of flood that today threatens the region's very existence. As soon as the Colorado's waters were safely corralled behind earth, concrete, and steel walls, the gates opened to an endless stream of people.

**History**

To understand the current situation, it is helpful to know the history of the relationship between the region's residents and the water that sustains them. Much to its surprise, the nascent government of the Republic of Texas quickly discovered the unpredictability of the Colorado River. Anglo settlers built the village of Waterloo in 1837, and the new republic set up shop there in 1839 renaming the town Austin in honor of Stephen F. Austin, the father of Texas. They chose the location for the new nation's capital because of its remoteness and picturesque beauty. In February 1843 extensive rains swelled the normally placid "stream" until it crested at 36 feet, flooding most of the town. A generation later as Texas recovered from the effects of the Civil War and Reconstruction, residents in towns along the Colorado recorded the worst flood in Texas history. After nearly three days of continuous rain, the Colorado crested at 51 feet in Austin and spread out to nearly ten miles wide.

People in Austin reported seeing the carcasses of buffalo in the flood water, indicating the origins of the flood in the far northwest. The devastation downriver was even worse, with the height of the water reaching 60.3 feet just east of Austin at Bastrop, while other towns along the river's path to the sea experienced floods as high as or significantly higher than those that swept through Austin. Frank Brown, Travis County Clerk, recalled the July 7, 1869 flood in his book the *Annals of Travis County*:

> **Early in the first week of July rain commenced falling and so continued at short intervals for several days. The stream commenced gradually rising, but no apprehension was felt of the heavy overflow. On the 6th, a tremendous flood suddenly came down in solid walls, overflowing all the lowlands and spreading over the valleys to the hills. The river rose to the bluffs. The people thought the highest was reached, but the water continued to rise rapidly, and much alarm was felt. The river reached its highest mark on the evening of July 7, at about 9 o'clock.**
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> **The rise was estimated at forty-six ft. The mass of waters rushed down from the narrow and confined channel between the mountains above, to the wider one below, with such fearful velocity that the middle of the stream was higher than the sides, and the aspect it presented was appalling.**

Two and a half decades later, the City of Austin raised funds through bonds to build its first successful dam in an attempt to mitigate the river's instability. The dam cost $1.4 million, or about $30 million today when adjusted for inflation, and was an engineering marvel, even earning a cover story in the August 1896 issue of Scientific American magazine as the longest masonry span yet built. But a flood just seven years later on April 7, 1900 obliterated the dam, took 18 lives, and did property damage equal to the original cost of the dam. It took the city 12 years to recover and accumulate the resources to rebuild the dam. The design for the new dam included wooden floodgates to allow water to pass. But this feature didn't prevent the dam's destruction three years later on April 23, 1915, when trees and other debris clogged the spillways and pulled the whole structure down. The 1915 flood killed 35 people and submerged much of the city, but the damage was minor compared to the virtual Armageddon floods would bring just 20 years later.

On June 15, 1935, a summer storm dumped 22 inches of rain in three hours on Austin and the surrounding Hill Country. The carnage of the resulting surge, although a foot below the 1869 record, was compounded by the density of development along the river. Floodwaters swamped the Congress Avenue bridge and completely destroyed bridges north on the Llano River and further south in Columbus. Water covered downtown Austin to a depth as much as eight feet in places, the surge snapped iron streetlights like twigs, rooted up and scattered water and sewer lines, and ripped hundreds of homes and businesses from their foundations and sent them sprawling away. When the waters subsided, residents returned to a morass of rubble covered in a foot-thick layer of sticky silt.

The Austin Chamber of Commerce wanted a dam, and pressured Mayor Tom Miller to find a way to get one built, historian Miller said. The mayor worked hard to find a way to get the

federal government to pay for one, even going as far as setting up an office in Washington from which to work.

Additional flooding in 1936 and 1937 further damaged the dam with significantly fewer losses, but the city had failed miserably to control the river. Finally in 1938 mayor Miller was able to secure federal funds to construct the dam that stands today. After battling the Colorado for a century Austin had nearly gone bankrupt trying to hold back the river, but between the destruction of the 1935 flood and the christening of the new dam in honor of the mayor, the rules changed. The construction of flood-control and power generation dams upriver would save Tom Miller Dam from the fate of its antecedents.

Construction began on the first of these dams in 1931. A subsidiary of Chicago securities firm Insull Utilities Investment broke ground on the George W. Hamilton Dam 12 miles west of Burnet, but construction stopped in 1932 when Insull filed for bankruptcy and its founders fled to Switzerland. "Senator" Alvin Wirtz, the court-appointed receiver for Insull's interests, convinced the Texas Legislature to create the Lower Colorado River Authority in order to take over the project, but the authority made little headway securing federal financing. The 1935 flood that ravaged the Colorado basin gave LCRA's advocates the drama they needed to convince Congress to authorize funds to complete the dam. LCRA finished construction in October 1937 and the hydroelectric generators were finally installed a year later.

LCRA rechristened the dam and the lake that it formed in honor of Representative James P. Buchanan who died in February 1937. Buchanan had been instrumental in securing federal funding for the project as the chairman of the House Appropriations Committee. According to Robert Caro's book "Lyndon Johnson: The Path to Power," Buchanan used his personal influence with President Roosevelt to fund the dam through the Public Works Administration, to provide flood control and desperately needed jobs at the height of the Great Depression. Even the design

of the dam worked to fulfill these goals. "They used a system of arches to hold back the water, because for one, it used less material, and two because it required more labor to build the complex concrete forms so it put more people to work," Yates said. "They minimized the material costs and maximized the labor costs."

Before Buchanan Dam was even operational, LCRA began construction on a smaller dam three miles downriver. Inks Dam was designed to work in tandem with Buchanan for power generation only and has no floodgates. It was named in honor of Roy B. Inks, a Llano businessman and founding board member of LCRA who lobbied relentlessly on behalf of the Hamilton (Buchanan) Dam after Insull pulled out of the project. Inks didn't live to see his work come to fruition. He died of complications from pneumonia after returning from a lobbying trip to Washington in August 1935, but his and James Buchanan's efforts gave LCRA the boost it needed to break ground on its most ambitious project to date just thirteen miles upriver from Austin at a low-water cattle crossing on the edge of the Marshall Ranch.

The Marshall Ford Dam would finally tame the wrath of the river and provide drinking water and electricity to Austin's population. The project was at the time the largest construction project in Texas history, and would catalyze the political career of one of the master politicians of the 20th century.

**LBJ, Alvin Wirtz, and Herman Brown**

When James Buchanan died suddenly of a heart attack in 1937 the LCRA lost its most influential advocate in the federal government. Wirtz, the general council for both the LCRA and Brown and Root Construction, convinced his protégé, 27-year-old Lyndon Johnson to make a run for Buchanan's house seat. Wirtz, a former state senator from Guadalupe County had worked previously for Insull and knew Johnson from his time in Washington as Congressman Dick Kleberg's secretary. Johnson's familiarity with LCRA's projects and his reputation as an energetic and reliable man who "knew how politics worked," made him a natural choice for Wirtz.

And the problem Wirtz needed help overcoming was monumental. From 1932 through the beginning of World War II, federal agencies like the Reconstruction Finance Corporation, the Works Progress/Projects Administration, and the Bureau of Reclamation provided tens of billions of dollars to finance and build roads and bridges, electrical transmission lines, dams, and other public infrastructure projects. City, county, and state governments hastened to their places at the trough. They set up their own programs, offices, bureaus, agencies, and public corporations to "game" the federal system and secure narrowly defined grants. This was the raison d'être for the Lower Colorado River Authority. The Texas Legislature hastily created the authority in November 1934 to pursue federal funds.

Although LCRA managed to build Buchanan and Inks Dams in spite of a few problems, those dams were financed primarily through Public Works Administration grants that had long since been exhausted by the time Herman Brown began construction on the Marshall Ford Dam. With construction already underway, Wirtz needed someone to navigate the alphabet soup of federal agencies and programs. Johnson was working as the Texas director of another New Deal

program, the National Youth Administration, when Wirtz promised to give him financial and political support in the race for the congressional 10th district seat.

With Wirtz' backing and advice, Johnson tirelessly campaigned in the Hill Country on a New Deal platform and by pandering to farmers and ranchers who knew his father Sam Ealy Johnson Jr. from his time in the Texas Legislature. With Wirtz directing his campaign Johnson managed to beat out five other old-line Texas politicians by a wide margin. Although the voter turnout was relatively low, of the nearly 29,000 votes cast Johnson earned more than 8,000, with his nearest opponent garnering just over 5,000. He won the seat with barely three percent of the district's population voting for him, but Wirtz again had a man in Washington.

Johnson's first responsibility as a congressman was to find a way to pay for the Marshall Ford Dam project. LCRA formally submitted the proposal through the Department of the Interior under the Bureau of Reclamation, but Buchanan's direct appeals to Roosevelt, circumvented the normal approval process. The bureau, under personal orders from Interior Secretary Harold Ickes, complied and paid LCRA $5 million (half of the total cost) to begin. The problem, however, was that under the 1902 Congressional act that created the bureau, the federal government was prohibited from paying for any project for which it did not retain absolute control. Complicating the matter, the Texas legislative act that created the LCRA, forbid the state from selling, leasing, mortgaging, or otherwise transferring any of its land to any person or body, including the federal government.

When LCRA awarded the contract to build Marshall Ford Dam to Brown and Root Construction, Herman and George Brown mortgaged every resource they had to buy the equipment to begin. They were nearly through the first appropriation when the Bureau of Reclamation realized the mistake and threatened to pull the plug on the project. Caro recounted George Brown's story of the day he found out about the problem:

> **We had put in a million and a half dollars in that dam, and then we found out it wasn't legal. We found out the appropriation wasn't legal, but we had already built the cableway. That cost several hundred thousand dollars, which we owed the banks. And we had set up a quarry for the stone, and built a conveyor belt from the quarry to the dam site. And we had put in a million and a half dollars. And the appropriation wasn't legal!**

Herman Brown pressured Wirtz to find a solution, and with Buchanan dead it was up to Johnson to make the project legal.

Johnson secured the help of senior Texas congressman Joseph Jefferson Mansfield, chairman of the House Rivers and Harbors Committee, to introduce a bill "validating and ratifying" the contracts for the project. Johnson contacted everyone he knew in Washington, called in every favor, begged, cajoled, and threatened, did whatever he could to secure an audience with Roosevelt to plead for the dam. The President eventually acquiesced and instructed his personal secretary Tommy Corcoran to "Give the kid the dam."

Even before construction was finished, Wirtz had negotiated a contract with Tom Miller for LCRA to provide electricity to Austin, historian Mike Miller said. Brown and Root completed the dam, and after a flood in 1938 extended its height to the current 278 feet. In 1941 LCRA renamed it Mansfield Dam in honor of the congressman for his help getting the original project approved. The final cost of the dam was around $27 million, with three different federal agencies providing the funding. Herman and George Brown walked away with $2 million, money that would later allow the company to pursue even larger government contracts. Johnson established his reputation as a master politician. LCRA gained near total control of the Colorado's water, and the groundwork was laid for the region's explosive growth.

**After the Dams**

In 1930 immediately before dam construction began, about 53,000 people lived in Austin. By 1950 after the dams were mostly complete, Austin's population had skyrocketed to just over 132,000. As of 2010, the population in Austin proper is about 786,000 and shows no signs of slowing. The Austin metropolitan area, as well as smaller surrounding communities experienced similar growth patterns. This increasingly affluent population spurred the development of a water-oriented leisure culture in the Hill Country.

"At first, you just had a bunch of fish camps and mom-and-pop campgrounds around the lakes," Yates said. "But now, we've got marinas with sailboats, waterskiing, jet skis, and even drag boat racing in Marble Falls. It's a huge part of what makes the Hill Country so attractive," Yates said.

Brian Henry, a longtime resident and boat owner agrees. "I trailer my boat, but I can leave the house and be on the water in 15 or 20 minutes," he said. "It's a great way to relax and get away from the stress of modern life."

Lake Travis is the most popular of the Highland Lakes because of its size and proximity to Austin. According to a 2009 LCRA use study, more than 500,000 people visit the lake each year. It is also the most developed lake in the chain with dozens of marinas and public boat ramps and more than 9,000 parcels of developed lakefront property – more than half of which are single family dwellings. The rest of development consists primarily of public infrastructure and businesses, many of which cater to boaters and other lake visitors.

When the dams were originally built, the main justification was flood control, with power generation a close second. The drought in the 1950s shifted the reason for new dams to water storage, said Janice Bezanson, executive director of the Texas Conservation Alliance, a group that opposes reservoir building for economic and environmental reasons. "As a side benefit they

point to Lake Travis [and others] and claim that the new lake will create tourism and jobs," she said. "This is really only true for reservoirs near large population centers."

Yates tends to agree. "Our primary mission is still community service, through flood control, power generation, and supplying water," he said, "but [LCRA] does a lot to promote water recreation." In the 1960s LCRA began promoting recreational water use by sponsoring events and buying advertising. Austin's "Aqua Festival," an annual event that ran from 1962 to 1989 celebrated the city's connection to the Colorado River. The festival featured water-related events like raft and canoe races, as well as concerts and exhibits.

Henry credits the LCRA and Aqua Fest with establishing a water-recreation culture in Austin. "I didn't move here until 1983, but I'd been coming here to visit family since I was two or three and I went to Aqua Fest every year. It all seemed so natural. I can't imagine what Austin culture would be like without the lakes."

Miller said that water has always been a part of Austin culture, but that it took on a bigger role with the creation of the Highland Lakes. "They represent prosperity and the wealth of the region."

**LCRA**

LCRA today ranks as one of the largest public utilities in Texas, providing electricity to 1.1 million consumers and water to more than 650,000. The authority owns more than 3,000 megawatts of power generating capacity (with less than 10 percent from the hydroelectric dams it owns), 42 parks, 2,000 employees, three dozen water treatment plants, a billion dollars in annual revenue, and rights to more than 2 million acre-feet of water per year from the Colorado River. How this quasi-government company of bureaucrats without direct public oversight became so powerful is a case study in the arbitrary exercise of power in a democratic society.

"LCRA was the brainchild of 'Senator' Wirtz," Miller said.

According to Caro's book, "Wirtz wanted power over other men and saw dams as the way to get it." Wirtz was also very connected to the Austin Chamber of Commerce and to Mayor Tom Miller who realized that the city couldn't grow without a dam.

"They all agreed that a dam would be in the best interest of the city," said Austin History Center general manager Mike Miller. "Back in those days, particularly before the council/city manager government, it was common for the chamber of commerce to dictate policy," Miller said. Wirtz used his connections with the chamber to establish support for the river authority.

Subsequently, LCRA wields a disproportionate degree of power in local and state politics. "They're one of the three groups that dictate what happens in Austin," said Morris Priest, a longtime local activist. "UT, the chamber [of commerce], and LCRA pretty much decide where, when, and what kinds of development occurs."

Yates agrees. "When LCRA came in and built the lakes they made sure that they annexed enough lakefront property. In the 80s and 90s they started selling some of that land to communities and developers," he said. Whether intentional or not, this had the effect of directing

where new subdivisions would be built. "When they sold the land, they retained the water rights and water-service rights," Yates said.

LCRA still owns 20 percent of the more than 270 miles of shoreline on Lake Travis and significantly more on Inks, LBJ, Marble Falls, and Buchanan Lakes. "At that time [LCRA General Manager Joe] Beal also started buying up small municipal water systems, and he came under a lot of criticism for it. People were saying, 'Why waste money on a utility with 1,000 subscribers?' But what he was doing was buying service area," Yates said.

The LCRA board announced after a meeting on Nov. 18, that it would sell its retail water and wastewater operations, but would retain the service rights in those areas. "They'll just sell the water to someone else to process," Yates said.

According to the LCRA website "In 1999 the Texas Legislature authorized LCRA to expand its transmission services outside its traditional service area." In addition to purchasing power transmission facilities and rights, LCRA also acquired the last large blocks of privately held water rights on the Colorado River when it purchased irrigation operations in Colorado and Wharton counties.

In addition to the control it exerts over residential consumers, LCRA's broad authority over water gives it the ability to dictate commercial and industrial uses as well. Recent disputes over the TXI gravel mine, transmission lines, and the San Antonio Water Supply lawsuit illustrate that in addition to federal and state regulatory agencies, proposed projects must pass muster with LCRA before going forward.

"Anything happening with water or energy in Central Texas, pretty much goes through LCRA for review," Yates said.

Priest put it more bluntly: "You don't want to piss off anyone at LCRA, or they'll find a way to kill your project."

LCRA governance is complicated at best, and purposefully so at worst, Yates said. The organization is governed by a board of directors each appointed for a two year term by the governor. "For the most part, the board stays out of everyday business, and focuses on establishing long-term goals," Yates said. "And the general manager decides how to pursue those goals." LCRA officials refused repeated requests for interviews with current general manager Thomas Mason, even after a list of prepared questions was submitted for approval.

**Brown and Root and the Origins of the Military Industrial Complex**

Before the LCRA and the dams, Brown and Root Construction was a road building company run by the brothers Herman and George Brown, the "Root" being Herman's brother-in-law Dan who died in 1929. The Brown brothers were well-versed in the art of political patronage, learning it the hard way from crooked county judges across the state. But they dreamed of hitting it big.

When Wirtz approached the brothers with the dam project, they saw their chance and bet everything they had on the venture. That gamble paid off and launched Brown and Root Construction as one of the largest government contracting companies in history.

According to the company's website, "The project was a defining moment classifying Brown and Root as a heavy construction, power and industrial company and led to large-scale government funded projects."

Bezanson agrees, "There aren't too many companies with enough resources to build a dam." Once a company builds a successful large project, it increases their odds of getting others. "After a while you start seeing the same names associated with more and more projects," she said.

Eventually these companies become "experts" and as such their principals serve on industry regulatory boards and commissions. "You get into a situation where companies are advising the government on projects that they will eventually build," Bezanson said. "Look at the Sulphur River Reservoir." Freese and Nichols provides contract engineering consulting services to Region C [Water Planning Board] and the company conducted a study recommending that a reservoir be built. Freese and Nichols will also design and build the reservoir. "They've named it 'Marvin Nichols Reservoir' in honor of the company's founder who also served as a founding member of the [Texas] Water Development Board," she said.

Had World War II not intervened, Brown and Root might have taken a similar path. As it is, the company went on to construct wartime facilities throughout Texas, including the $90 million Corpus Christi naval air station, and a fleet of ships worth $500 million. After the war, Brown and Root diversified and completed a string of large oil and natural gas projects, off-shore drilling platforms, pipelines, and petrochemical plants on six continents. It continued building large hydroelectric dams and other government infrastructure projects including NASA's manned space center and the Eisenhower Tunnel. The company merged with Halliburton (a subsidiary of Humble Oil) after Herman Brown died in 1962.

According to Caro's book, Herman Brown understood the value of giving money to politicians, both directly and through campaign contributions. Brown and Root financed a significant portion of Johnson's first congressional campaign, as well as subsequent runs. The strategy paid off when Johnson as President escalated the war in Vietnam and made sure that Halliburton received contracts to build more than 85 percent of the military infrastructure in that country. In 1986 the company built a $475 million naval/air force base on Diego Garcia, and in 1991 the company won the Logistics Civil Augmentation Program contract with the U.S. Army to provide direct support, field services, and other services to the military. According to the company's website, "LOGCAP would turn into the largest contract in Brown and Root history."

In 1998 under the leadership of then Chairman of the Board and Chief Executive Officer, Dick Cheney, Halliburton merged with Dresser Industries to form the company Kellog, Brown & Root which Halliburton later spun off as KBR Inc. The company continues to provide logistics, engineering, construction, and maintenance services to the U.S. military both domestically and in support of operations worldwide. "KBR is the largest contractor for the U.S. Army, a top-ten contractor for the U.S. Department of Defense, and the world's largest defense services provider," according to KBR investor-relations documents.

According to SEC filings, KBR Inc. earned $14.1 billion in revenue for the 2009 calendar year and held $941 million in cash and equivalents. Fortune magazine ranks KBR 193rd on its 'Fortune 500' list. The company employs approximately 57,000 people worldwide in its operations.

KBR and its executives continue to follow Herman Brown's example by financing political campaigns at the local, state, and national level, as well as maintaining a powerful lobbying presence. Although election law now prohibits federal contractors from contributing to candidates in federal elections, companies can still give money through political action committees. According to records from the Texas Ethics Commission and the Federal Election Commission, the KBR Inc. PAC spent more than $252,000 during the 2009-2010 election cycle and executives like Chairman Bill Utt consistently contribute just under the maximum legal limit of $10,000 per election cycle for individual PAC contributions.

**Solutions**

In the simplest terms, the problem facing Central Texas it that within a generation, there will not be enough water for the number of people living in the region. The basic economic law of supply and demand dictates that we either increase the supply, or decrease the demand.

In the past, LCRA and the TWRB responded to similar problems by building dams. LCRA's early success with flood-control and power generation dams, helped establish a culture of dam-building in Texas that persists today, Bezanson said. "The drought in the 50s was really the catalyst. They started building dams without really looking at other options, and now it's become their default solution," she said.

But this solution is only viable if there is a source of water to impound. The seven dams on the Colorado already capture most of the river's water, and although LCRA owns the rights to 2.1 million gallons, in some years barely half that volume is available. Yates described the situation in drought years. "Sometimes, as much as 90 percent of the water in the river is outflow from municipal treatment plants," he said. "In very dry years, even that doesn't reach the gulf."

Another option to increase the supply, would be to use water from other rivers, but most of those nearby already supply other cities in similar situations. Oilman T. Boone Pickens started promoting the idea of a water pipeline a few years ago as a solution to Texas' looming water crisis. Yates doesn't believe that building a water pipeline is possible today. "You certainly couldn't build Lake Travis today, there are just too many landowners to negotiate with," he said. "LCRA has enough trouble getting people to let us run transmission lines across their property, I don't think it would be easy to sell a water pipeline."

Even assuming that another dam or pipeline was built, Bezanson doesn't believe that it is the most economical solution. "You've got huge initial infrastructure costs and ongoing

maintenance costs in addition to the cost of the water," she said. "Somebody has to pay for it all."

Yates said that reducing the outflow from the water treatment process might alleviate some of the shortfall, but it could require upgrading the plants and, "people don't like the idea of drinking recycled sewage."

So without a readily available additional source of water, consumers will likely pay heavily to increase the supply. "We could do it," Yates said, "but higher water prices would slow economic growth."

The other choice is to decrease demand. This means either reducing the number of customers using water or reducing the volume of water that customers use. According to the LCRA regional water plan, some reductions in water use can be achieved through changes in agricultural practices or crops, improvements in manufacturing, mining, and power generation technologies, and by reducing the outflow at municipal water treatment plants. But a quick look at a list of LCRA's "firm" (uninterruptible) raw water contracts reveals that municipal utilities account for 63 percent of the authority's water users. Subsequently most of LCRA's conservation efforts are directed at retail consumers.

"The easiest solution," said Mark Wieland of the city of Austin Water Conservation department, "is to reduce consumer demand." Each of the government agencies, departments, and NGOs concerned with water use offers suggestions and programs designed to reduce municipal consumption.

LCRA offers specifications to builders and homebuyers for landscaping with native plants, designing efficient irrigation and rainwater collection systems, as well as tips and tricks to purchase, maintain, and repair water-using appliances and fixtures.

The city of Austin offers its municipal customers a range of programs to assist and encourage conservation, from rebates for efficient toilets and clothes washers, rainwater harvesting and irrigation systems, to landscape conversion. "We're doing whatever we can to encourage people to use less water," said Weiland.

John Dromgoole, the host of the radio show 'Gardening Naturally' and the owner of the Natural Gardener nursery in Austin believes the solution lies in landscaping. "The easiest way to use less water is to switch to native and adapted non-native plant species for landscaping," he said. "Nature has already done the work of selecting the best plants for this environment," Dromgoole said. "They're naturally drought and insect tolerant, and need fewer resources to grow."

Dick Peterson, the former program coordinator for the City of Austin's Xeriscape program, agrees. "People move here and expect to grow the same plants they grew wherever they came from," he said. "They're upset when their azaleas won't grow no matter how much they water."

Getting people to make the switch, however, is a two-fold problem. "First, you've got to change the way people think about their landscape, and then you've got to give them an incentive to do it." Peterson said.

This incentive manifests itself as mandatory water rationing, and will only increase. People like lawns, but drought-tolerant doesn't have to mean "cactus and rocks." There are native plants of every type, from flowers and grasses, to vines, shrubs and trees. The misconception about what constitutes Xeriscaping is a problem that Peterson has struggled with over the years.

"Education is the key," he said. "When I was president of the Austin Xeriscape Garden Club, we sent speakers to various gardening groups around town to discuss the beauty and benefit

of drought-tolerant plants. Eventually these clubs started adopting our philosophies and we declared the club a success and disbanded it."

Dromgoole believes that the Lady Bird Johnson Wildflower Center has made this education process easier. "If people want to see what can be done with native plants, I tell them to go to the wildflower center. They can see settings planted with natives with little signs that clearly identify the plants," he said. "They can duplicate these groupings in their own yards."

The center, established in 1982, serves as a national and state clearing-house. Julie Krosley, the senior horticulturalist at the center, explains its mission, "We're here to promote and educate the public about native plants," she said. "We work with the city to establish a list of recommended plants for the Grow Green program. We have also worked with highway departments all over the country to help pick plants for landscaping highway medians and shoulders."

The Lady Bird Johnson Wildflower Center is an educational facility, but it holds plant sales twice a year and hosts art shows as well, Krosley said. "We focus on guided tours and seminars about native plants."

Besides using less water, Dromgoole believes that native plants create a unique sense of place. "What's the point of living here if it looks like every other city in America?" he said.

**The Future**

No one knows what the Texas Hill Country will be like for the next generation, but everyone agrees that if we continue doing what we're doing, it won't be pretty. Something must change. Will the weather patterns suddenly shift because of global warming and double our annual rainfall? Possibly, but unlikely. Will everyone change their minds and decide that Austin isn't really as cool as they thought, and move away? Hardly. Maybe T. Boone is right, and we'll soon be buying our water from the Great White North, eh? No.

The solution to our problem lies with us and us alone. We are beguiled by a beautiful string of emerald lakes into believing that we don't live on the edge of a desert, a spell cast by an ambitious young wizard three quarters of a century ago. It's time to wake up and act accordingly.

**The Book Proposal**

When most people think about history, they think about wars, battles, treaties, generals, and statesmen. Inventions, court cases, protest marches, assassinations, coups and the dates and names of those who participated swirl to form nebulous images in our minds. But much of the history that affects us most profoundly occurs in back rooms, on porches, on golf courses, or in darkly paneled offices, with the players shrouded in clouds of cigar smoke, and deals sealed with a handshake, a nod, wink, or the clink of a glass. While the actors in that first kind of history go on to write memoirs or retire to the sanitized pages of some history text book to live famously (or infamously) forever in our shared experience, the actors in the other kind of history retire in obscurity to their offices and clubs to count their money and sit back perhaps with another cigar.

This is a history of latter type. Although it contains many of the same tropes we have been spoon-fed for the last three centuries, of men of humble origins achieving greatness, of monumental struggles against great odds, of perseverance and endless toil in service of the greater good, this book also chronicles the darker side of human experience. This is a story of petty squabbles that wrecked communities, of dealing, double-dealing, and backstabbing, of Faustian bargains, of snake oils, medicine shows, political spectacles, bread and circuses, and money-most of all money.

Much like today, the political and economic climate in the 1930s made the country ripe for plundering. When people talk about 21st century bailouts, the sub-prime mortgage crisis, Fannie and Freddie, or AIG, they spit the words like bitter pomegranate seeds. The American Recovery and Reinvestment Act of 2009, though it pumped nearly $800 billion into the flagging U.S. economy, did little to improve the lives of average Americans. Seventy-five years ago another president swept into office on a promise of change and the result then was largely the same. While the average American received a few crumbs to ease his plight, corporations grew

fat on their shares of "assistance." City, county, and state politicians rushed to grab their shares of federal "aid" that they then awarded to their friends as lucrative contracts for public works projects.

From 1932 through the beginning of World War II, federal agencies like the Reconstruction Finance Corporation, the Works Progress/Projects Administration, and the Bureau of Reclamation provided tens of billions of dollars to finance and build roads and bridges, electrical transmission lines, dams, and other public infrastructure projects.

In 1934 the Texas Legislature authorized the creation of the Lower Colorado River Authority to pursue these federal funds. The authority, while ostensibly working in the interest of the public, in the process helped turn a small-time paving company into a giant government contractor and a congressional secretary into a congressman who would later become a senator and finally president. The dams and lakes that LCRA built transformed a rutted backwater into a nexus of economic and political power that dominates the national stage even today.

This is the story of the men and women who financed and built the dams and the people who profited materially and politically from them. It is also the story of how the dams themselves physically transformed the land and made possible a flowering of culture and art previously unknown in Texas.

Books about specific places tend to have a limited appeal, however Texas' prominence in the national economic and political spheres, as well as Austin's renown as a cultural center, will give it a wider appeal than similar books about other regions. Readers interested in back-room politics, history, the environment, or business will find something interesting. Because so many individuals got their starts and made their political and economic fortunes from the Highland Lakes, this book will be valuable to those seeking to learn how cronyism works and flourishes. Companies like Brown and Root, still a major government contractor, used the Highland Lakes as

a springboard to secure billions of dollars' worth of government money that they then pumped into political campaigns of candidates who shared their views. Law firms, lobbyists, business associations, and other special interest groups each participated in the plundering of New Deal programs.

This is a biography of a place, the story of how a river changed the lives of those around it. But more than just encapsulating the experiences of Texans specifically, it generalizes a pattern of economic growth and human experience that has occurred wherever and whenever man has faced the constraints of limited resources.

This battle has been fought, won, and sometimes lost, countless times since the dawn of man. And while modern technology enhances our ability to subdue the land, the increasingly marginal nature of the resources remaining, reduces the chances of continued success. The story offers a glimpse into a past where pioneering men and women took on monumental challenges and risks, and where conniving men cashed in on "progress."

Marc Reisner's "Cadillac Desert" explores the politics behind the damming of America's great western rivers. Reisner destroys the overt justifications for building large dams and exposes the real reasons, namely concentrating control of resources in the hands of a few powerful men. This book follows in this tradition, by tracing the back-scratching, logrolling, and back-room dealings that made the Highland Lakes possible. Like "Cadillac Desert," this book criticizes the existence of large dams as boondoggles that allow people to live where they shouldn't and farmers to grow food where they couldn't, but it also focuses on the dams and lakes as engines of positive economic and social change.

Fred Pearce's "When Rivers Run Dry" explores the effects that growing populations have on ground and surface water supplies, and postulates a water crisis in the near future. This book examines the carrying capacity of the Colorado River in light of Pearce's catastrophic predictions.

This book examines just how close the Texas Hill Country is to collapse and will serve as a call to action.

Because it is about a particular place, this book is similar to "The Great Thirst" by Norris Hundley Jr. It looks at the history of water in the Texas Hill Country, in much the same way that "The Great Thirst" recounts California's water development history. However the breadth of this book is significantly narrower than Hundley's work owing largely to the comparative sizes of the two regions.

Similarly, "The Epic Struggle for Wealth, Power, and Civilization" by Steven Solomon argues that the wealth of nations is closely tied to their water resources. This book serves as a case-in-point to Solomon's theories, as it charts the rise of a political culture in direct proportion to its utilization of water resources. It also explores the personalities behind that culture's ascension. Like Robert Caro's "The Path to Power" or John R. Adams, Jr.'s "Damming the Colorado: The Rise of the Lower Colorado River Authority, 1933-1939," this book looks at how Lyndon Johnson joined his political fate to the fate of a dam, and how upon completion of the latter the former prospered. This book looks at the politicians who used the Colorado for their own ends and charts the rise of the LCRA from a tiny public-corporation to a monopoly wielding tremendous influence over the lives of millions.

With the fate of 2.4 million people hanging in the balance, the final chapter has yet to be written. Will the efforts to protect this valuable resource be too little too late, or will conscience, activism, and technology intervene at the eleventh hour to save the Texas Hill Country from its own success? This book outlines some of the possible outcomes, good and bad, given the region's current trajectory.

I am fully invested in this project and will do everything possible to ensure its success. I have already purchased the domain www.txhighlandlakes.com. I am in the process of creating a

website to promote the book and will set up a hosting account for it as soon as it is complete. Once the website is finished and I have secured a contract to publish the book, I will begin blogging about the process of writing and will chronicle my progress over the life of the project. I have created a fan page on Facebook and will use it to promote the blog. I will post excerpts from the book and solicit reader response in a continuing dialog. I will also post links to online resources, edited interviews, photos, and other exclusive content on Youtube.com and cross-link to the "TxHighlandLakes" project website. I will post raw interviews as podcasts on the website.

I have approached several well-known non-fiction authors and editors about this project and am confident that they will write "advance praise" for the book—on their own websites, in publicity material, on the dust jacket, or in all three. I have already met with a literary publicist to lay the ground work for a campaign. I am willing and prepared to travel to promote this book and will purchase local advertising, mailing lists, and promotional materials in support of book signings, speaking engagements, appearances, or media events during the launch of the book.

The Colorado River is the heart and pulse of the Texas Hill Country. Since the 1840s the region's residents have relied on it for sustenance, power, and inspiration. The struggle to tame its fickle flow culminated in a chain of seven reservoirs and opened the door to seemingly endless development. In the next few decades the population of the region may exceed the limits of the river to provide water for drinking, agriculture, and manufacturing. If left unchecked, this explosive growth may prove to be the region's undoing.

Politicians and citizens alike have made their fortunes from the powers of the Colorado River. Whether they have the foresight and resolve to take corrective action in time remains to be seen, but history shows us that men have fought and died while jealously guarding this primary resource. This book is the story of the Colorado River, the Texas Highland Lakes, and the people behind them. It is a cautionary tale, yet one that offers hope. If our fates are indeed wedded to

this water, then in destroying it, we destroy ourselves. This book is a call to arms in the fight to save the Colorado, to save the Hill Country, to save ourselves.

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